



UNITED STATES DEPARTMENT OF COMMERCE
Patent and Trademark Office

Address: COMMISSIONER OF PATENTS AND TRADEMARKS
Washington, D.C. 20231

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
09/382,442	08/25/99	REINBERG	A 303.522US1

021186
SCHWEGMAN, LUNDBERG, WOESSNER & KLUTH
P.O. BOX 2938
MINNEAPOLIS MN 55402

MM92/1103

EXAMINER

BOOTH, R

ART UNIT	PAPER NUMBER
----------	--------------

2812

DATE MAILED: 11/03/00

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Office Action Summary

Application No.

09/382,442

Applicant(s)

REINBERG, ALAN R.

Examiner

Richard A. Booth

Art Unit

2812

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is FINAL.
- 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-39 is/are pending in the application.
- 4a) Of the above claim(s) 15-25, 33 and 34 is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-14, 26-32, and 35-39 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claims ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are objected to by the Examiner.
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).
- a) ☐ All b) ☐ Some * c) ☐ None of the CERTIFIED copies of the priority documents have been:
1. ☐ received.
2. ☐ received in Application No. (Series Code / Serial Number) ____.
3. ☐ received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

- 14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. & 119(e).

Attachment(s)

- 15) ☒ Notice of References Cited (PTO-892)
- 16) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 17) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2

- 18) ☐ Interview Summary (PTO-413) Paper No(s). ____.
- 19) ☐ Notice of Informal Patent Application (PTO-152)
- 20) ☐ Other: ____.

DETAILED ACTION

Election/Restrictions

Applicant's election without traverse of group I in Paper No. 4 is acknowledged.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 6 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 6, the phrase "the semiconductor" lacks antecedent basis.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-14, 26-32, and 35-38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lisenker et al., PCT WO 94/19829.

Lisenker et al. shows the invention substantially as claimed including forming a MOS based device whereby deuterium is employed at various stages of the process to, for instance, gate oxides, field oxides, and various other oxide layers (see page 4, lines 24-32). In addition, deuterium can be employed in many processes (see page 8, lines

Application/Control Number: 09/382,442

Art Unit: 2812

30-35). In fact, deuterium can be used in any process in which hydrogen or a hydrogen containing compound is used.

Lisenker et al. lacks anticipation of specifically performing the deuterium processes on a flash memory device. However, a flash memory device is a MOS based device and therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to perform the deuterium processing disclosed in the primary reference of Lisenker et al. on a flash memory device because the beneficial results would also occur on a flash memory. Furthermore, the examiner takes official notice that the process steps claimed are well known in the art hydrogen based processes and would have been prima facie obvious to replace the hydrogen with deuterium for the reasons suggested by Lisenker et al..

Claim 39 is rejected under 35 U.S.C. 103(a) as being unpatentable over Lisenker et al. as applied to claims 1-5, 7-14, 26-32, and 35-38 above, and further in view of Aomori et al., U.S. Patent 5,504,020.

Lisenker et al. is applied as above but lacks anticipation of defining the source and drain using deuterium implantation.

Aomori et al. discloses performing hydrogen implantation using the gate as a mask to simultaneously perform source and drain implantation and hydrogenation which leads to a stable substrate interface (see column 9, line 65 – column 10, line 14 and abstract). In view of this disclosure, it would have been obvious to one of ordinary skill in the art at the time the invention was made to perform the process disclosed by Aomori et al. using deuterium instead of hydrogen because the overall processing steps

Application/Control Number: 09/382,442

Art Unit: 2812

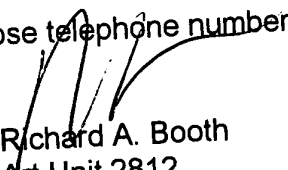
are reduced and deuterium has beneficial results compared to hydrogen as advanced by Linsenker et al..

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Richard A. Booth whose telephone number is 308-3446. The examiner can normally be reached on Monday to Thursday from 7:30 to 6:00

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Niebling can be reached on 308-3325. The fax phone numbers for the organization where this application or proceeding is assigned are 308-7724 for regular communications and 308-7724 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 308-1782.


Richard A. Booth
Art Unit 2812